REMARKS:

In the Office Action dated August 19, 2008, claims 1-9, 11, 12, and 25 in the above-identified U.S. patent application were rejected. Reconsideration of the rejections is respectfully requested in view of the above amendments and the following remarks. Claims 1-9, 11, 12 and 25 remain in this application and claims 10, 13-23 and 24 have been withdrawn.

The office action indicates that an English translation of German application 103 26 302.0 has not been submitted. German application 103 26 302.0 is identical to the international application submitted on December 12, 2005. A certified translation is enclosed with this response.

Claims 1-9, 11 and 12 were rejected under 35 USC §112, second paragraph, as indefinite due to the language "nucleotide analog" and "pyrimidine nucleotide analog". Applicants respectfully point out that the terms "nucleotide analog" and "pyrimidine nucleotide analog" are well known in the art. Enclosed with this response, are printouts from Wikipedia indicating that the terms "base analog" which is equivalent to "nucleotide analog" and the term "pyrimidine analog" are well known in the art. These entries provide definitions and examples of these terms and are evidence that these terms have generally accepted definitions and are known in the art. In view of the above discussion, applicants request that this rejection be withdrawn.

Claims 1-9, 11 and 12 were rejected under 35 USC §103(a) as unpatentable over Tyagi, Weisburg and Nunnally. The office action points out example 2 in Tyagi which uses DABCYL at the 3' end and a fluorophore at the 5' end. The DABCYL alone at the 3' end is not considered to be a fluorescent labeling group. The DABCYL is used as a quencher

which is required for proper functioning of a molecular beacon. In addition, in the present invention both ends of the probe must have a pyrimidine nucleotide or a pyrimidine nucleotide analog between the target sequence and the labels. Tyagi has a pyrimidine at one end and a purine at the other so that a hairpin can form. Claim 1 in the present invention has been amended to clarify that the sequence Z is a spacer and that $(Z)_n$ does not hybridize with $(Z)_{n'}$. Tyagi uses alkyl groups as spacers which are structurally and functionally different from the spacer sequences (Z) used in the present invention. The office action indicates that Weisburg is cited for the disclosure of sequences with both termini ending in pyrimidines. The examiner points out SEQ ID NO:2 and figure 4. SEQ ID NO:2 has one pyrimidine at each end but it is a target nucleic acid that does not include a labeling group. SEQ ID NO:2 is an internal sequence which is detected with a labeled probe (d) as can be seen in figure 3. The disclosure at col. 11, lines 26-42 describes the process and col. 12, lines 1-9 indicates that SEQ ID NO:2 is a target sequence. In figure 4 the pyrimidine T_{14} sequences are the immobilized probes and do not include any other nucleotides or labels. Even if one were to create a probe where Z and X in formula I of the present invention are both T, such a probe is not suggested by Weisburg because Weisburg does not have fluorescent labeling groups on his probe. One skilled in the art would not modify Weisburg's capture and/or immobilized probes to include pyrimidine sequences and chromophors at both termini as such probes would result in a detectable result regardless of whether the target sequence hybridizes. In addition, combining Tyagi with Weisburg would result in a probe construct whose respective termini comprise labeled homo-polymeric nucleotide sequences which are complementary with each other in order to hybridize with each other not a probe with pyrimidine sequences at both ends which

cannot hybridize. Therefore, the combination of Tyagi and Weisburg does not suggest a probe with pyrimidines and fluorescent labeling groups at both ends which is an essential feature of the present invention. Nunnally is cited only for the disclosure of fluorescent dyes. Nunnally does not suggest or disclose a probe whose target sequence (X1-X2...Xm) is separated from the terminal labels (M, M'), by pyrimidine sequences or suggest that such probes would have increased sensitivity. Therefore, Nunnally does not cure the above discussed deficiencies in Tyagi and Weisburg. In view of the above discussion, applicants contend that the combination of cited prior art does not render the presently claimed invention obvious and request that this rejection be withdrawn.

Claim 25 was rejected under 35 USC §103(a) as unpatentable over Tyagi, Weisburg and Nunnally. As discussed above, the combination of Tyagi, Weisburg and Nunnally does not suggest a probe with pyrimidines and fluorescent labeling groups at both ends, which is an essential feature of the present invention. The combination of Tyagi, Weisburg and Nunnally would result in a probe construct whose respective termini comprise fluorescent labeled homo-polymeric nucleotide sequences which are complementary with each other in order to hybridize with each other not a probe with pyrimidine sequence at both ends which cannot hybridize. For the reasons discussed above regarding claims 1-9, 11 and 12, applicants contend that the combination of cited prior art does not render the presently claimed invention obvious and request that this rejection be withdrawn.

Applicants respectfully submit that all of claims 1-9, 11, 12 and 25 are now in condition for allowance. If it is believed that the application is not in condition for allowance, it is respectfully requested that the undersigned attorney be contacted at the telephone number below.

In the event this paper is not considered to be timely filed, the Applicant respectfully petitions for an appropriate extension of time. Any fee for such an extension together with any additional fees that may be due with respect to this paper, may be charged to Counsel's Deposit Account No. 02-2135.

Respectfully submitted,

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MCK/

Pyrimidine analogue

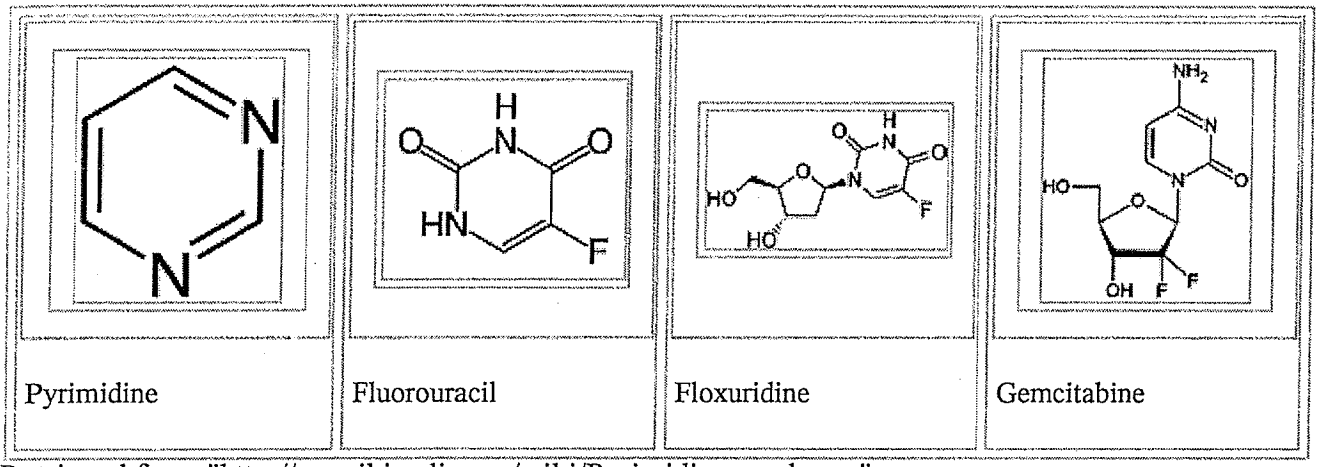
From Wikipedia, the free encyclopedia
(Redirected from Pyrimidine analog)

Pyrimidine analogues are antimetabolites which mimic the structure of metabolic pyrimidines.

Examples

Examples include:

- 5-fluorouracil (5FU) which inhibits thymidylate synthase.
- Floxuridine (FUDR)
- Cytosine arabinoside (Cytarabine)



Pyrimidine	Fluorouracil	Floxuridine	Gemcitabine

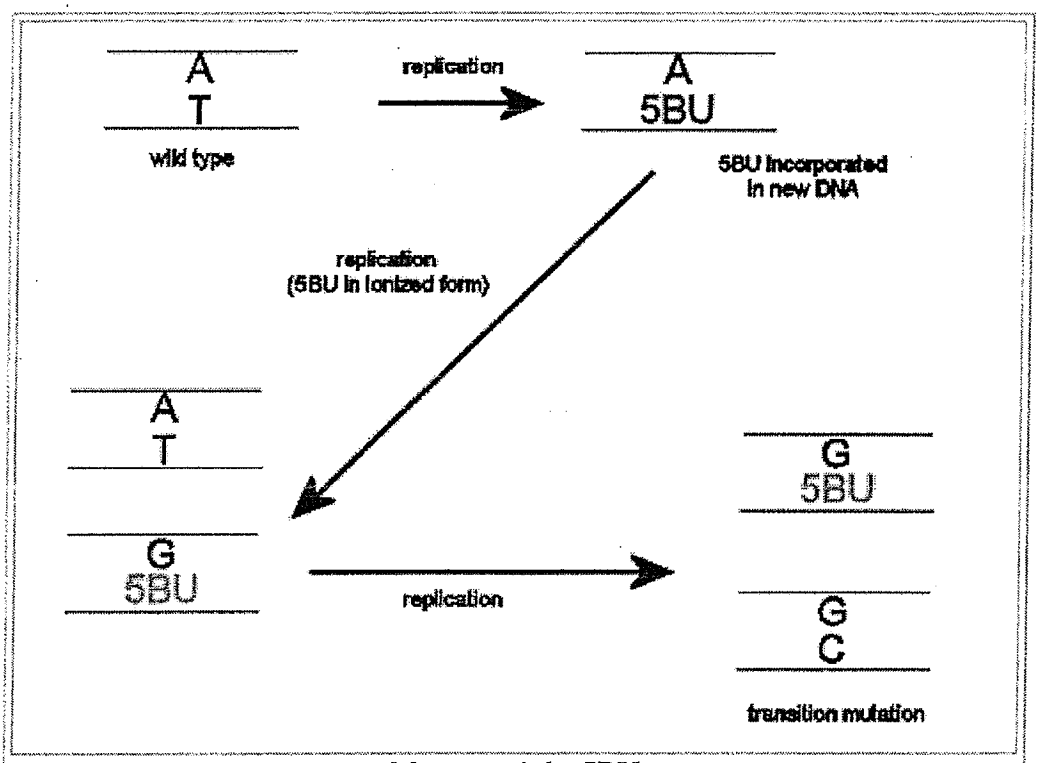
Retrieved from "http://en.wikipedia.org/wiki/Pyrimidine_analogue"
Categories: Metabolism

Base analog

From Wikipedia, the free encyclopedia

A **base analog** is a chemical that can substitute for a normal nucleobase in nucleic acids.

A common example would be 5-bromouracil (5BU), the abnormal base found in the mutagenic nucleotide analog BrdU. When a nucleotide containing 5-bromouracil is incorporated into the DNA, it is most likely to pair with adenine; however, it can spontaneously shift into another isomer which pairs with a different nucleobase, guanine. If this happens during DNA replication, a guanine will be inserted opposite the base analog, and in the next DNA replication, that guanine will pair with a cytosine. This results in a change in one base pair of DNA, specifically a transition mutation.



Mutagenesis by 5BU

See also

- Antimetabolite

References

- Griffiths AJ, Wessler SR, Lewontin RC, Gelbart WM, Suzuki DT, Miller JH. *Introduction to Genetic Analysis*, 8th ed. New York:W.H.Freeman and Co, 2005.

Categories: DNA | Genetics